ABSTRACT

A water-base fluid for use in drilling, cementing, workover, fracturing and abandonment of subterranean wells through a formation containing a shale which swells in the presence of water. In one illustrative embodiment, the drilling fluid includes, an aqueous based continuous phase, a weighting agent, and a shale hydration inhibition agent. The shale hydration inhibition agent should have the general formula:

in which A is independently selected from H and CH₂CH₂CH₂NH₂; and in which B is independently selected from H, CH₂CH₂OH, CH₂CH₂OCH₂CH₂CH₂NH₂ and CH₂CH₂CH₂NH₂. The shale hydration inhibition agent is present in sufficient concentration to substantially reduce the swelling of shale drilling cuttings upon contact with the drilling fluid. The drilling fluid may be formulated to include a wide variety of components of aqueous based drilling fluids, such as weighting agents, fluid loss control agents, suspending agents, viscosifying agents, rheology control agents, as well as other compounds and materials known to one of skill in the art. The fluids may also be used in the disposal by reinjection of drilling cutting into a selected subterranean disposal formation.